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Dimension sheet and pressure drop/volume flow curve are also available for the Pressure and Vacuum Vent types 945-EL-E 50-50 & 200-200

1. Use

Pressure and vacuum vents 945-EL-E / 1x0.9 comply with the following standards:

EN ISO 16852:2016	Flame Arresters – Performance requirements, test methods and limits for use
DIN EN 13463 Part 1:2009-07	Non-electrical equipment for potentially explosive atmospheres Basics methods and requirements
DIN EN 13463 Part 5:2004-03	Non-electrical equipment for potentially explosive atmospheres Protection by constructional safety "c"

The general suitability as a deflagration end of line flame arrester when used with inflammable gas/air mixture and vapour/air mixtures of inflammable liquids of the explosion group IIB3 (MESG \geq 0.65 mm) has been verified by tests executed at the Institute for Safety Technology IBExU Freiberg. The test results were confirmed by the EC prototype test certificate **IBExU18ATEX2139 X**.

For all applications and use conditions, the pressure and temperature limits below shall be observed and strictly followed by the end user:

- Maximum Allowable Operating Pressure: Atmospheric (0.8bar (absolute) to 1.1bar (absolute))
- Maximum Allowable Operating Temperature: -20°C to 60°C
(Max surface temperature: 80% of ignition point)

The following Valve Pallet settings are available:

- Set-pressure for pressure: 2,5 to 200 mbar *) *) factory pre-set default
- Set-pressure for vacuum: 2,5 to 50 mbar *)

As part of the documentation package, the product is delivered with a factory Test Certificate according to EN 10204, which includes the technical features of the product as well as the EC Prototype Testing Certificate number. Also, as part of the documentation package, a Declaration of Conformity is issued, assuring compliance with standard EN ISO 16852, as well as compliance with the ATEX directive 2014/34/EU.


2. Construction

The Vent 945-EL-E consists of a steel housing (1), equipped with pressure (7) and vacuum valve pallets (11) and a Flame Arrester Element (8). The housing is sealed by covers (3) that are held by cap screws (6). For pressures above 70mbar, the pressure side cover may be extended in height. O-rings (4) are used to seal the covers against the Housing. The valve pallets are guided by a guiding bush (9) screwed into the covers.

The flame arrester element is firmly secured into the assembly by cap screws (22). The Arrester Element assy consists of a housing flange and an angular winded metal foil element with a gap width of 0.9 mm, which are firmly connected with each other by a screw and nut.

The valve pallets are pre-set in factory for the customer's specific set-up pressure using calibrated weight disks. The valve pallets can be supplied with FEP seal or metal seal, under special request.

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3. Marking

The product is supplied with nameplate(s) and label(s) that provide important information to the customer about the product and its limitations. Below are some of the information provided:

Nameplate:

- Name and address of the Manufacturer
- Product Type (including version number)
- Serial Number and year of manufacture
- EC Prototype Certificate Number
- Number of the relevant design standards (ISO 16852)
- EX mark, followed by the device group information II and the letter "G" (for classified areas where explosive gases, vapors and/or air mixtures are present)
- Explosion group
- CE mark, followed by the Notified Body number

Warning Label:

- **Warning Flame arresters have installation and application limits
Type designation in accordance with ISO 16852**
- Characters for Flame Arrester Type: **DEF** (Deflagration)
- L_v/D Ratio (distance to ignition source): --- (Not applicable)
- Burn rating "BC": **c** (No burn time)
- Burning Time t_{BT} (only for "BC" b): --- (Not applicable)
- Explosion Group: **IIB3**
- Maximum Operational Temperature T_0 : **60°C**
- Maximum Operational pressure p_0 : **atm.** (Atmospheric)

The Arrester Element is marked at the outside with the following information:

- Name of the manufacturer
- Gap width
- Material designation number
- Winding direction

Example: **BS&B-0.9-1.4571-R**

4. Installation


The arrangement and the installation of the vent into the plant shall be done under observance of the rules applicable to the relevant range of use. Ensure especially that the instructions for accident prevention have to be observed.

A vertical installation position of the vent has to be kept under all circumstances.

A minimum distance of vent outlet to external devices has to be adhered to avoid reduction of volume flow. This minimum distance depends on local circumstances and has to be specified by operator. The vent is equipped with a flange connection PN10 Form C or ANSI 150 RF. While installing the product, be careful that the sealing face is not damaged and that there is no foreign matter or grease between the flanges so no gap to the atmosphere can occur.

The valve has to be included in the equipotential bonding of the vessel or plan.

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To prevent transportation damage, the valve pallets are shipped separate from the vent and need to be assembled in the valve before operation as per the following steps:

- Remove the covers (3) by loosening the cap screws (6)
- Install the Pallets carefully on top of the Pressure and Vacuum seats (2 & 5)
- Replace the covers (3) on both sides making sure that the guiding rod of the Pressure and Vacuum Pallets are properly inserted and guided inside the guiding bushes (9)
- Tighten the cover screws (6)

5. Maintenance

The maintenance includes a periodic visual control of the flame arrester element with regard to contamination and appearance. The intervals for the maintenance works depend on the operating conditions.

For cleaning purposes, the flame arrester must be uninstalled as follows:

Remove the screws (22) and take out the flame arrester element (8).

In case of minor contamination the flame arrester element shall be blown out with compressed air or hot vapour.

In case of major contamination a flushing with a cleaning agent can be carried out. After cleansing all parts which had been wetted by a cleansing agent, shall be blown dry.

The metal foil element of the flame arrester element shall not be removed from its housing parts. The installation of the flame arrester and housing is carried out in reverse order.

During the cleansing works no mechanical modifications may be done on the flame arrester element or on the housing parts of the flame arrester.

On principle, the flame arrester element has to be replaced by a new one, if:

- loosening or distortions in the structure of the metal foil elements can be recognized;
- corrosion damages at the metal foil elements have been detected;
- in case of strongly contaminated metal foil elements, even after cleaning, a residual contamination of more than 30 % of the free flow cross-section remains.

All works in connection with repair and replacement of components shall be executed only by trained and authorized skilled personnel.

During maintenance work, valve seats and valve discs have to be checked for contamination and damages as well. Uninstalling and re-installing are to be performed as described under 4.


The valve seat must be examined in particular for intactness of the sealing surface. Damage to the valve seat are to be eliminated by expert grinding and lapping.

Depending on the sealing system in use on the valve inserts, make sure that either the FEP seal or the metallic sealing surface are not damaged. Damaged valve discs or seals must be replaced by new ones.

It is recommended to hold a spare flame arrester element and the respective seals ready for each vent.

In case of replacement of structural units only original spare parts listed in the spare parts list may be installed to ensure the required safety.

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6. Spare part list


Table: Spare parts DN50 and DN200

Item No.	Description	Qty.	Material	Order No.	
				DN50	DN200
3	Cover, complete	1	St NSt	FET15415132 FET15415133	FET15417567 FET15417568
6	Cap Screws	3 8	NSt	242035000	232015500
7	Pressure Valve Pallet – FEP - valve disk - FEP-seal surface	1	NSt/FEP	FET15415115 812071200 722087800	FET960000057 812072300 722088900
7	Pressure Valve Pallet – metal - valve disk - metal-seal	1	NSt	FET15415116 812071200 FET992784000	FET960000058 812072300 FET993108100
7	Pressure Valve Pallet (>70mbar) – FEP - valve disk - FEP-seal surface	1	NSt/FEP	FET15415117 812071200 722087800	-
7	Pressure Valve Pallet (>70mbar) – metal - valve disk - metal-seal	1	NSt	FET15415120 812071200 FET992784000	-
11	Vacuum Valve Pallet – FEP - valve disk - FEP-seal surface	1	NSt/FEP	FET15415115 812071200 722087800	FET960000057 812072300 722088900
11	Vacuum Valve Pallet – metal - valve disk - metal-seal surface	1	NSt	FET15415116 812071200 FET992784000	FET960000058 812072300 FET993108100
4	O-ring	2	NBR FPM EPDM FPM/FEP FFKM	812072800 802087800 812072900 812073000 812073500	802078600 802078700 802078800 802078900 802079000
8	Flame Arrester Element 1x0,9	1	NSt	FET15415114 FET15415114-CL	FET15417573 FET15417573-CL

* Valve inserts without added weights

* Valve inserts without added weights

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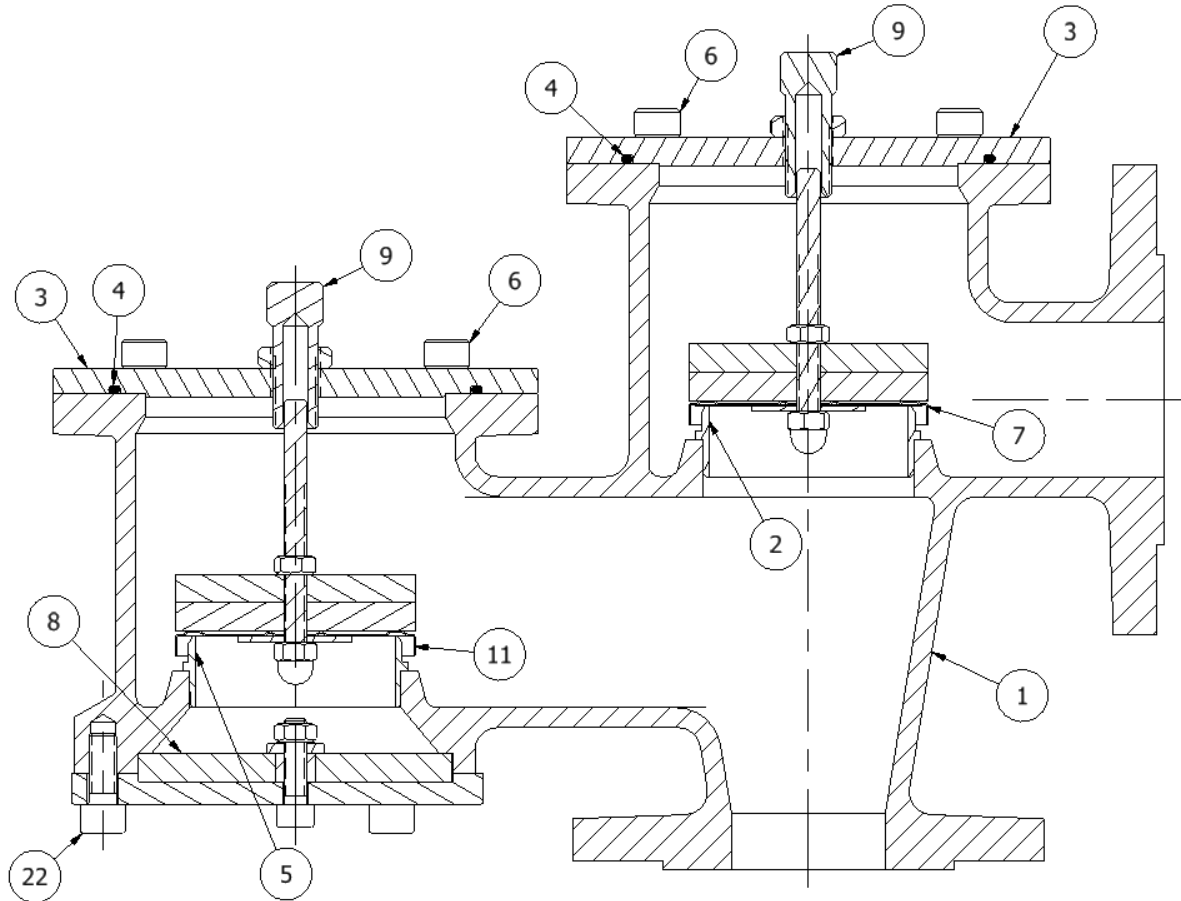
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Material marks

St ... steel	LM ... light metal	FPM ... Viton	FEP .. Fluoride plastic
NSt ... stainless steel	K ... plastic	NBR ... Perbunan(N)	PTFE .. Fluoride plastic

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Assembly drawing



Warning Label

Warning Flame arrester have installation and application limits. Type design in accordance with ISO 16852			
DEF	$L_v/D = \text{---}$	BC: c	$t_{BT} = \text{--- min}$
	Ex G IIB3	$T_0 = 60 \text{ }^\circ\text{C}$	$p_0 = \text{atm.}$

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